REMARKS

Claims 1-25 are pending in the present application. Claims 1, 12 and 18 are independent.

By this Amendment, claim 10 and 18 have been amended to improve form and new claims 24-25 have been added. No new matter has been added.

Allowable Subject Matter & New Claims

Applicants appreciate the Examiner's indication that claims 10 and 11 are objected to, but allowable. Accordingly, new claims 24 and 25 corresponding to allowable claim 10 have been added to depend on independent claims 12 and 18, respectively. Thus, claims 24 and 25 are also allowable.

35 U.S.C. § 102 & § 103 Rejection

Claims 1-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Antonacopoulos (referred to as 'Anton' below). Claims 1, 9, 12-15 and 18-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable Anton. Claims 1, 8, 12 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable Anton in further view of Ittner (EP 0621553 A2). Claims 12, 17-18 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable Anton in further view of Stolin (US 6,175,844). These rejections are respectfully traversed.

The Examiner alleges that Anton teaches or render obvious each feature recited in independent claims 1, 12 and 18. Applicants respectfully disagree.

Both in Applicants' invention and Anton, a graph is constructed. However, Anton's graph is vastly and patentably different from the graph in Applicant's invention, such that the

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graph according to Applicants' invention can be immediately used for calculations while the

graph of Anton cannot. The manner in which Anton's defines its vertex and edge of the graph is

completely different from the manner in which Applicants define its vertex and edge of the

graph.

More specifically, Anton constructs a graph by connecting the midpoints of while tiles,

e.g., see section 2.3 of Anton. In Anton, the white tiles surround the foreground areas in the

image, and the foreground areas are constructed using a smearing process, e.g., see page 340,

section 2.1 of Anton. As a result, Anton concludes that such a graph is not suitable for detecting

the layout areas because the number of vertices and edges is large, which causes the tracing of

the cycles in that graph to be time consuming with a significant number of computations needed

in searches to identify all possible cycles. Thus, instead, Anton proposes using only the

connection of the cycles in the graph in his construction of a contour of edges of white tiles,

which follow the shape of the region closely, leaving all white area, e.g., indentations excluded.

However, as shown in Fig. 8 of Anton, this contour is irregular with many edges, mainly because

of the many indentations at the border of the layout elements, and is used to conduct a search

through the while tiles to identify all starts of cycles.

In clear contrast, Applicants' graph is constructed in a much smarter way than Anton's.

According to Applicants' embodied invention, information white rectangles (IWR) surrounding

the layout areas of the image are constructed, where the number of IWRs is considerably lower

than the number of white tiles in Anton, because Applicants' method makes IWRs as large as

possible in the horizontal or vertical direction. The graph in Applicants' invention is then

constructed, which connects the intersection points of the IWRs. This graph has fewer edges and

vertices (also because of the fact that Applicants' invention does not include indentations by construction), and becomes a two-direction graph (horizontally and vertically directed edges only). As such, the shortest cycles outline effectively the layout elements of the image by this construction, wherein the edges of the graph actually correspond to the field separators of the layout elements. That is, in Applicants' invention, the shortest cycle is defined as a closed path from a vertex back to that same vertex via the edges of the graph, that has the lowest sum of weights of edges of all possible closed paths from said vertex back to said vertex, wherein the shortest cycles of the list are defined as the fields (corresponding to the layout elements) of the image Thus, this graph according to Applicants' invention can be immediately used for further calculations on the layout elements.

Furthermore, Applicants' graph is advantageous because the graph describes the borders of the layout elements with respect to x and y arguments of the vertices and therefore, the calculations on these layout elements can be immediately and easily performed. In contrast, Anton still has to surround the layout area by stepping along the inner edges of the white tiles, being represented by the vertices of the cycles in his graph.

Thus, Anton fails to anticipate or render obvious at least "constructing a list of contiguous shortest cycles that together completely cover at least a part of the image, a shortest cycle being defined as a closed path from a vertex back to that same vertex via the edges of the graph, that has the lowest sum of weights of edges of all possible closed paths from said vertex back to said vertex" as recited in independent claim 1. Other independent claims 12 and 18 recite similar features in a varying scope.

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In addition or in the alternative, Anton fails to anticipate or render obvious at least "constructing a graph having vertices and edges connecting the vertices, on the basis of background areas in the image, said graph edges corresponding to field separators that together delineate the fields of the image" as recited in claim 1. Other independent claims 12 and 18 recite similar features in a varying scope. For instance, according to Applicants' embodied invention, the graph edges correspond to field separators and actually are lying inside the field separators.

Furthermore, none of the secondary references correct these deficiencies of Anton since they have been relied upon to reject the dependent claims.

Accordingly, independent claims 1, 12 and 18 and their dependent claims (due to the dependency) are patentable over the applied reference(s), and the rejections are improper and should be withdrawn.

Conclusion

In view of the above remarks, it is believed that claims are allowable, and the application is in condition for allowance. An early issuance of the Notice of Allowance is respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.
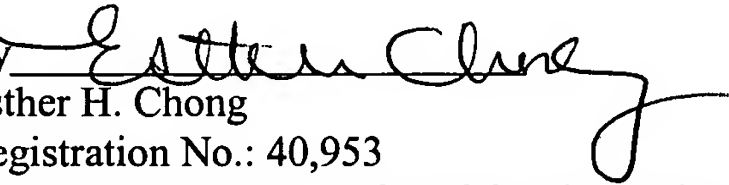
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies

to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional

fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: August 7, 2007   Respectfully submitted,

By _____
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